

APPROVALS	DATE	1088 CAMERA CONTROL UNIT REPAIR MANUAL			
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1088 Medical Video

Camera Control Unit

Repair Manual



Warranty

The customer is responsible for returning the defective equipment to the factory at his or her own expense. Stryker Endoscopy or its representative will service the unit, repair or replace any defective parts thereof, and return the unit.

If, upon examination, it is determined that the fault has been caused by misuse or abnormal conditions of operation, the repairs will be billed to the customer in the same manner as out-of-warranty repairs.

As of July 1, 1994, products repaired by Stryker Endoscopy will be issued a 30 day repair warranty against defects in both materials and workmanship, provided the original warranty period has expired. This warranty applies only to products that have been repaired by Stryker. Instruments submitted due to defects in materials and workmanship during the warranty period will be repaired at no charge to the customer.

The warranty as set forth herein is exclusive and in lieu of all other warranties, remedies, obligations, and liabilities of Stryker Endoscopy Inc., expressed or implied, including the implied warranties of merchantability and fitness for use and of consequential damages. These products are being sold only for the purpose described herein, and such warranty only runs to the original purchaser. In no event shall Stryker Endoscopy be liable for any breach of warranty in any amount exceeding the purchase price of the product.

No agent, employee or representative of Stryker Endoscopy has the authority to bind the Company to any other warranty, affirmation, or representation concerning this instrument.

This warranty is valid only to the original purchaser of Stryker Endoscopy products directly from Stryker Endoscopy or from a Stryker Endoscopy authorized agent. The warranty cannot be transferred or assigned by the original purchaser.

The Model 1088 Medical Video Camera Control Unit Warranty Is Void if Any Warnings, Cautions, Or Notes Are Disregarded.

All Stryker Products Are Warranted Against Defects In Materials And Workmanship.

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1.0 Introduction

1.1 SCOPE

This manual is intended to be used as a reference guide for Stryker repair technicians in the installation, maintenance, and repair procedures for the Stryker Model 1088 Medical Video Camera Control Unit. It is meant to be used in conjunction with the Stryker Model 1088 Medical Video Camera Control Unit Operating and Maintenance Manual (Stryker part # 1000-400-675) and does not replace existing documentation.

Stryker Endoscopy maintains a complete repair department for the sole purpose of providing efficient and reliable service.

1.2 RESPONSIBILITY

Stryker Endoscopy accepts full responsibility for the effects on safety, reliability, and performance of the equipment only if readjustments, modifications and repairs have been carried out exclusively by a person specifically authorized by Stryker Endoscopy to do so.

In no event shall Stryker Endoscopy be liable for incidental or consequential damages in connection with or arising from the performance or use of its products after unauthorized modification or repair.

1.3 UPGRADES

The Model 1088 Medical Video Camera Control Unit represents leading technology in medical imaging and is a dynamic product undergoing constant review. Stryker Endoscopy reserves the right to incorporate improvements without notice. However, updated parts will be fully interchangeable with older versions and will offer at least the same level of quality and performance.

Stryker Endoscopy will inform customers of significant upgrades to the product. Contact your Stryker representa-

tive for up-to-date information on available options and upgrades to equipment as well as updates to this manual.

1.4 EQUIPMENT OVERVIEW

The Stryker Endoscopy Model 1088 Medical Video Camera Control Unit consists of a hand-held camera head, a camera control unit, a coupler, and associated cables. The precision focusing coupler and High Definition CCD array sensors deliver a high level of functionality and color image quality, which help to optimize the physician's view. The camera head and cable are sterilizable by cold soaking or ethylene oxide gas to reduce the risk of infection to the patient. The camera control unit (CCU) contains the associated video circuitry and power supply.

1.5 SERVICE OPTIONS

Due to the complexity of the Model 1088 Medical Video Camera Control Unit system, the user is advised to return a malfunctioning system to Stryker Endoscopy for repair or replacement, where specialized equipment and technicians are available to perform repairs while maintaining full product quality and safety.

If the user decides to undertake repair procedures, Stryker Endoscopy recommends that these be carried out only by qualified technicians with proper test equipment listed in this manual, so that the safety of operators and patients may not be compromised.

1.6 MAINTENANCE PRECAUTIONS

WARNING: The incorrect use of any of the required tools



and/or techniques may risk damage to the equipment or injury to the person carrying out the procedure, subsequent operators, or patient. Perform the repair **ONLY** if you have been specifically trained in the use of all pertinent equipment and techniques. Stryker Endoscopy cannot continue to guarantee compliance to UL, CSA, TUV, or other

labeled safety standards if service is performed by anyone other than Stryker Endoscopy personnel.

1.7 FACTORY SERVICE INSTRUCTIONS

If service is needed either during or after the warranty period:

- Contact Stryker Endoscopy at 1-800-624-4422 or contact your local Stryker Endoscopy sales representative. If needed, a loaner unit may be requested during the time of your unit repair.
- Package all the components carefully in the original shipping container, if possible. Be sure to include both the camera head/cable assembly and the camera control unit.
- Ship the Model 1088 Medical Video Camera Control Unit, prepaid and insured, to:

Stryker Endoscopy Customer Service
Attention: Repair Department
5900 Optical Court
San Jose, California 95138

1.8 REQUIRED EQUIPMENT

Most of the procedures described in this manual require the following basic toolkit:

- Small flat blade screwdriver
- Medium Philips screwdriver
- 8" adjustable wrench
- Needlenose pliers
- Color video monitor
- Glass fuse puller

Some procedures may require the following advanced instruments:

- Multimeter
- Oscilloscope 20 Mhz or higher
- NTSC/PAL Vectorscope
- Bio Tek Model 601 PRO Safety Analyzer or equivalent current leakage tester

1.9 REQUIRED SKILLS

Each diagnostic and repair procedure described in this manual requires a technician qualified by training or experience in the following areas:

- Basic electronics techniques
- Multimeter operation
- Oscilloscope operation
- Vectorscope operation
- BioTek Safety Analyzer Operation

1.10 REQUIRED REPLACEMENT COMPONENTS

Many repair procedures call for replacement parts. These are shown and referenced to corresponding Stryker part numbers in the diagrams in Appendix B, at the end of this manual.

NOTE: Some of the parts listed in this manual are for in-house use only and are NOT available to any non-Stryker entity. Stryker Endoscopy will make every effort to make certain repair parts available upon request. Before any parts may be purchased, an Indemnification Letter must be signed and submitted to Stryker Endoscopy. The Indemnification Letter is available upon request from our Customer Service and Technical Support centers at 1-800-624-4422. **NONE OF THE IN-HOUSE MAPs (Manufacturing Assembly Procedures), QIPs (Quality Inspection Procedures), SPECIALTY TOOLS, JIGS, OR FIXTURES LISTED IN THIS MANUAL ARE AVAILABLE FOR PURCHASE.**

2.0 Diagnostic and Corrective Maintenance

2.1 GENERAL RECOMMENDATIONS

The Stryker Endoscopy Model 1088 Medical Video Camera Control Unit is a precision instrument which has been engineered and manufactured with great care to ensure the safety of operators and patients. In order to maintain the high level of safety and reliability required in a device of its nature, it is important to fully understand and comply with all required procedures set out herein.

If some part of a procedure is omitted or adequate equipment is not used, the safety and performance of the device may be unknowingly compromised. It is strongly recommended that if any element in these procedures is beyond the scope of the technician's training, refer to section 1.7 for information on obtaining fully qualified professional service at Stryker Endoscopy.

WARNING: As is the case with all AC powered devices, dangerous voltages are present. If adequate safety precautions are not taken, results may include damage to the equipment, injury, or death. It is imperative that these procedures be approached only by trained technicians with proper equipment after fully reading and understanding the steps involved.



1. Documents will be completed in accordance with Good Documentation Practices.
2. Repairs will be performed in accordance with this document and supplemented by the Manufacturing Assembly Procedures used during new production.
3. Before release, products will be inspected using the Quality Inspection Procedures used for new production.
4. Customer Service will contact customers to advise of repair charges and obtain approval for repairs.
5. The Video Repair Record (DHR-56) is a subpart of the

Device History Record and therefore must be retained for the period stipulated for DHRs.

6. Product Received for Repair will be maintained with a repair work order and the Video Repair Record documentation to indicate repair status and serve as identification/segregation from new production.
7. Check serial number, order number, and product number on Device History Record.

3.0 Repair Matrix

3.1 INSTRUCTIONS FOR USING MATRIX

1. Using basic troubleshooting, identify the failure code on the left column.
2. Identify the corresponding repair code.
3. Follow the repair sequence indicated.

NOTE: Failure codes can be the result of a variety of component failures. Follow the sequence in order to identify the failed component.

		REPAIR CODES																			
		RUA - Replace Rear/Analog Board	VBD - Replace Digital Board	RUC - Replace Main Board	RAC - Replace Camera Input board (Lemo)	RAD - Replace AC Inlet Board	RUE - Replace Power Supply Board	RUB - Replace Front Board	RAE - Replace Power Switch	RFF - Check/Replace Fuse	RAF - Tighten Connections (Board/Port)	RAG - Check Camera Cable Connection	RAH - Upgrade Digital Board Software	RAI - Upgrade Rear Board Software	RAJ - Replace Ethernet Board	RAK - Replace LCD	RAL - Replace Speaker	RAM - Replace Fan	COV - Replace CCU Cover	RAN - Replace CCU Chassis	RFP - Replace Front Panel
FAILURE CODES	Picture Failures																				
	CHR	No Picture	1	2	3	4															
	CCL	No Color Bars	3	1	2																
	CEA	Distorted Picture, All Outputs	1	2	3																
	CEB	Distorted Picture on RGBHV/DVI	2	1	3	4															
	CEC	Distorted Picture on CVBS/SVHS/RGB Only	1	2																	
	CHF	Interference on Picture	1	2	3	4															
	CCA	Color Out of Alignment	1	2	3	4															
	CCD	Intermittent CCU	3	4	5	6								2							1
	Power Failures																				
	CED	Power Switch Inop					1	3		2											
	CEE	No Power					1	2		3											
	CCB	Fuse Blown					2				1										
	CCN	CCU Powers Off Intermittently					2	3		4	1										
	Functions																				
	CCK	Defective Rear Panel Switch	2	1																	
	CEG	Ethernet Communication Error	2																		
	CEH	Front Panel Buttons Inop	3	4	5																
	CEL	CH)			1																
	CEM	Will not WB : WB keeps blinking	1	2	3																
	CEK	Specialty Functions Inop	3	2	1				4												
	CEI	Camera Head Buttons Inop. WB/GAIN don't work from Front Panel.	1	2	3																
	CEJ	Work	1	2	3	4															
	CU1	Old Software Revision																			
	Input/Output Ports																				
	CCC	Camera Input Failure (Color Bar OK, No picture with CH)			2	1															
	CCU	Loose Female Connector																			
	CEN	Digital Video Output Failure	2	1																	
	CEO	Analog Video Output Failure	1																		
	CEP	Ethernet Port	3																		
	CEQ	SIDNE Port Failure	2																		
	CER	Remote Port Failure	1	2																	
	Board/Component Failures																				
	DVO	Digital Board Failure		1																	
	CUA	Rear/Analog Board Failure	1																		
	CUB	Front Board Failure	2						1												
	CUC	Main Board Failure			1																
	CUE	Power Supply Board Failure						1													
	CES	Lemo Connector/Board Failure				1															
	CET	Ethernet Board Failure																			
	CEU	AC Inlet Board Failure					1														
	CEV	Speaker Inop														1					
	CEW	Fan Inop															1				
	Cosmetics																				
	CCP	Damaged Chassis																		1	
	CCJ	Damaged CCU Cover																	1		
	CFP	Damaged Front Panel																			1

4.0 Component Removal and Repair

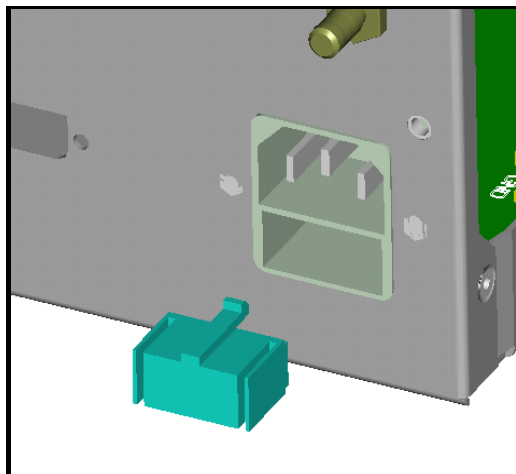
4.1 DISASSEMBLY PROCEDURES

4.2.1 CCU Cover Removal

- Remove the 2 Phillips screws from the rear of the CCU.
- Slide the CCU cover to the rear approximately 3/4" until loose, and lift upwards to remove.

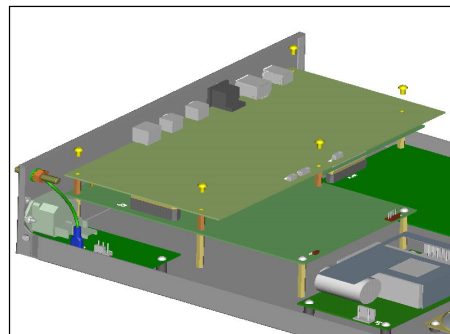
4.2.2 Fuse Box Removal

- Locate the fuse holder on the right rear of the CCU, underneath the power cord inlet.

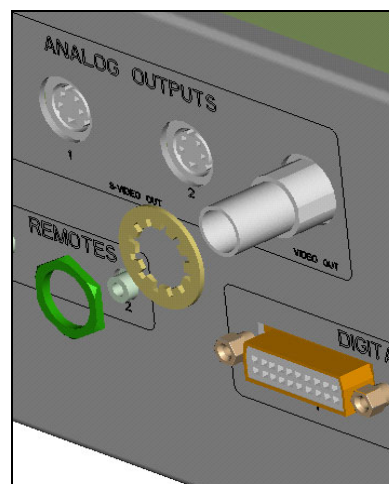


- Using a small flat head screwdriver, press the two release tabs inward separately until they snap. (See Figure 1)
- Pull the fuse holder out of the CCU to replace fuses.
- To reinstall, push the fuse holder into the CCU until it snaps into place. Gently press the fuse holder to confirm that each side is locked in place.

4.2.3 Analog/Rear Board Removal

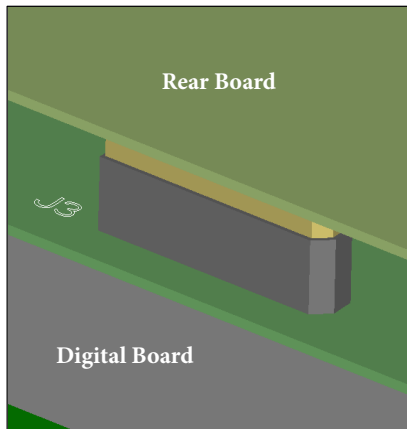


- Disconnect the wires J11, J3, and J20 by pulling gently on the white connector. Do not pull directly on the wires, as this may loosen the internal connection.
- Remove the wires at J22 by gently lifting the white tab and pulling out on the brown connector.
- Remove the nut and washer from the video out coax connection on the rear of the CCU.



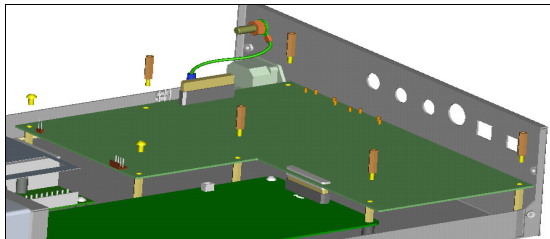
- Remove the 5 Analog/Rear Board screws using a Phillips screwdriver.

- Lift upward on the analog board to disconnect from the digital board at J3. Slide the board out of the rear ports on the chassis and remove.

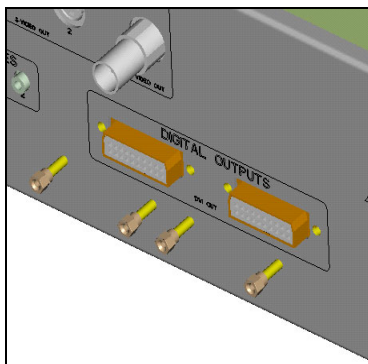


4.2.4 Digital Board Removal

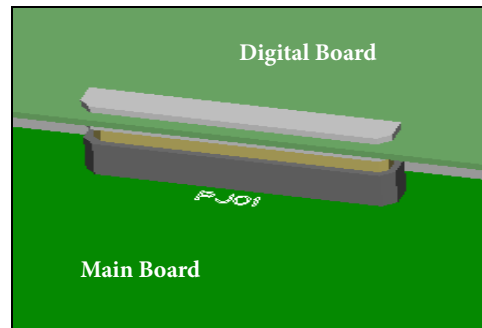
- Disconnect the J8 connection by gently pulling on the white connector. Do not pull on the wires directly, as this may loosen the internal connection.



- Disconnect the LED wire by gently pulling on the black connector.
- Remove the Digital Output hex screws on the rear of the CCU chassis.

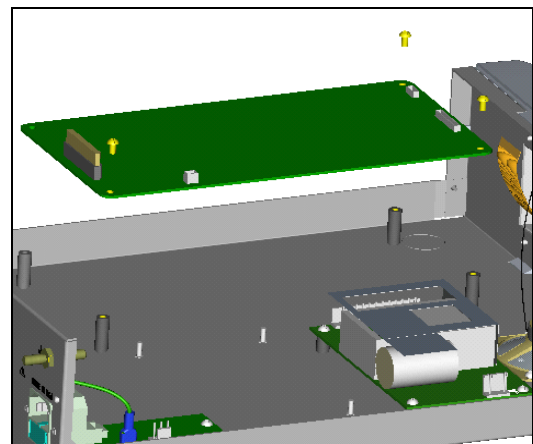


- Remove the 5 1/4" hex standoffs and the 2 Phillips screws that secure the board inside the chassis.
- Disconnect the digital board from the main board at the PJ01 connection by gently lifting the digital board straight up.

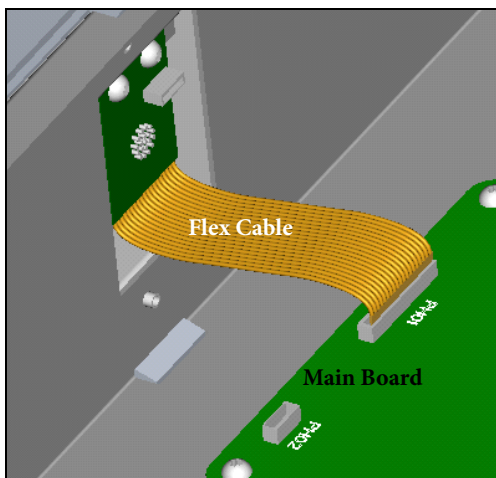


- The digital board may now be removed from the CCU.

4.2.5 Main Board Removal



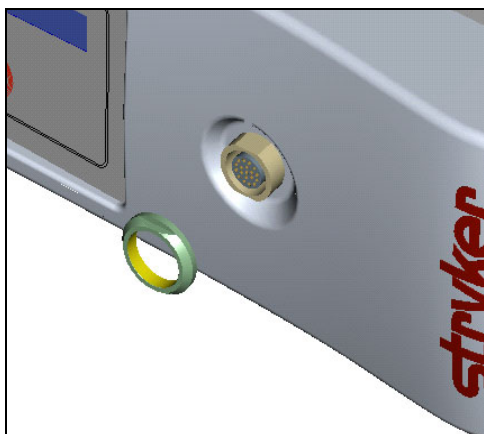
- Disconnect the wire assemblies at the PT02 and PH02 connections by gently pulling on the white connectors.
- Disconnect the flex cable at J2 by first lifting the locking tab on the Main Board connector and then pulling out the cable.



- Remove the 1/4" hex standoff and 3 Phillips screws that secure the main board to the chassis.
- Remove the main board.

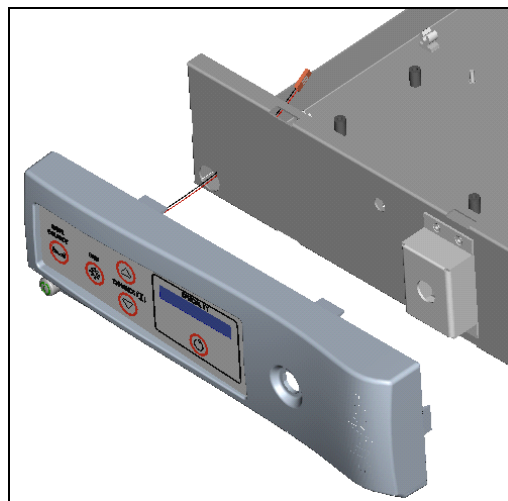
4.2.6 Front Panel Removal

- Unscrew the Lemo 6-notch nut from the front panel.

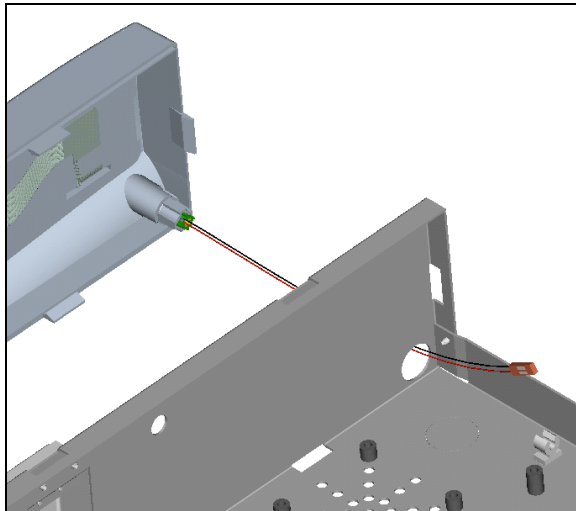


- Disconnect the wire assembly at the Front Board J3 connector. this connector is located on the back side of the front panel inside the chassis. Needle-nose pliers or tweezers may be needed in order to access the white connector.

- Slide a thin flat head screwdriver in between the front panel and the chassis to the right of the top right locking tab on the front panel. Apply light outward pressure on the front panel.
- While applying outward pressure on the front panel, use a second flat head screwdriver to depress the front panel locking tabs, beginning with the right most tab. Work towards the left until the front panel is disconnected from the chassis.

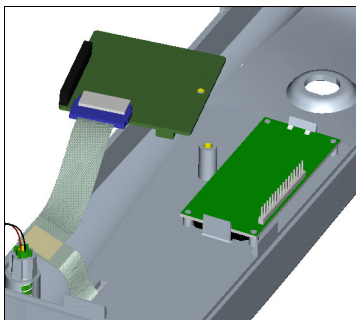


- The front panel will still be connected to the chassis by the LED wire. If the front panel needs replacement, perform the following steps:
 1. Ensure the LED is disconnected from the digital board.
 2. On the chassis, cut the cable ties that secure the LED wire.
 3. Feed the LED wire through the opening at the front of the CCU chassis and remove the front panel.

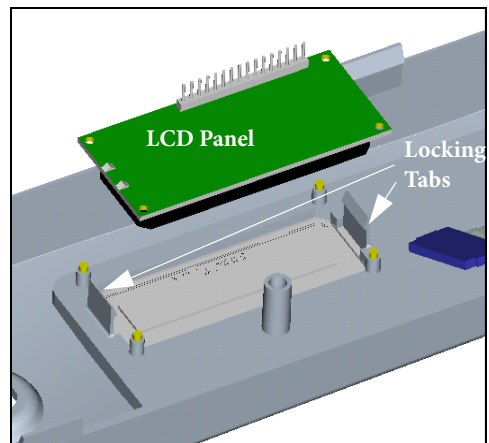


4.2.7 Front Board/LCD Panel Removal

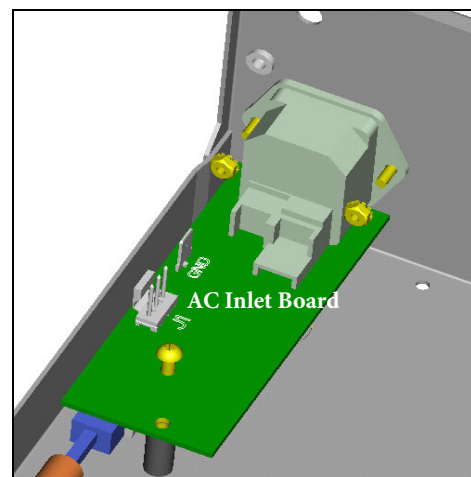
- Open the front panel according to the procedure listed above. Do not disconnect the LED wire.
- Disconnect the blue flex cable from the front board by gently pulling. There is no locking device at the board connection.



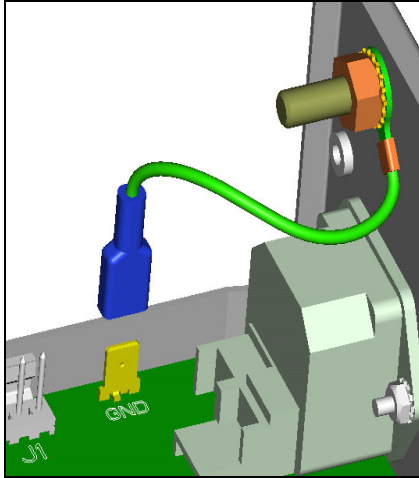
- Remove the Phillips screw from the front board.
- Gently pull up on the front board to disconnect from the LCD panel.
- To disengage the LCD panel, pull upward on one end of the panel while pushing the locking tabs on the same side. Repeat this step for the opposite side of the panel.



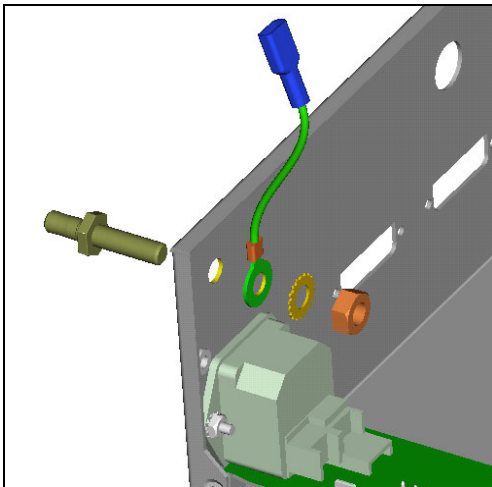
4.2.8 AC Inlet Board Removal



- Disconnect the wire assembly at J1 by depressing the locking tab on the board and lifting the wire assembly.



- Disconnect the ground cable from the chassis.



- Remove the nuts that secure the AC Inlet Connector.
- Remove the 2 Phillips screws on the AC Inlet Board and remove the board.

5.0 Final Inspection

5.1 ASSEMBLY

- Disconnect power cord from CCU.
- Reinstall all pertinent components.
- Verify that all connectors are firmly seated in their proper place.
- Ensure that there are no unattached or unsoldered leads.
- Check all physical mounting screws and nuts for tightness.
- Install CCU cover.
- Apply power and check for proper operation.
- If unit is still malfunctioning after following this manual's instructions, follow procedure 1.7 to obtain factory service at Stryker Endoscopy.
- If unit appears to be operating correctly, proceed to procedure 5.6.

5.2 HI-POT/DI-ELECTRIC BREAKDOWN TEST

- Energize the Hi-Pot tester and adjust the test voltage to 1.8 kV.
- Connect the Hi-Pot test fixture to the AC inlet of the CCU.
- Ensure the Hi-Pot tester is operating properly by touching the positive and negative test leads together. The alarm on the tester should sound. Reset the alarm.

NOTE: If the alarm does not sound, send the tester in for repair.

- Touch the positive (red) test lead of the Hi-Pot tester to the fixture. Touch the negative (black) test lead to the ground rod of the CCU.
- Hold for one second. If the Hi-Pot tester alarm sounds, the CCU must be rejected.

5.3 SAFETY LEAKAGE CURRENT CHECK and SAFETY ECG GROUND RESISTANCE TEST

- Perform the safety test per QIP-0054.
- Perform the safety test using 240 Volt, BF type, control number 3 on the Bio-Tek.

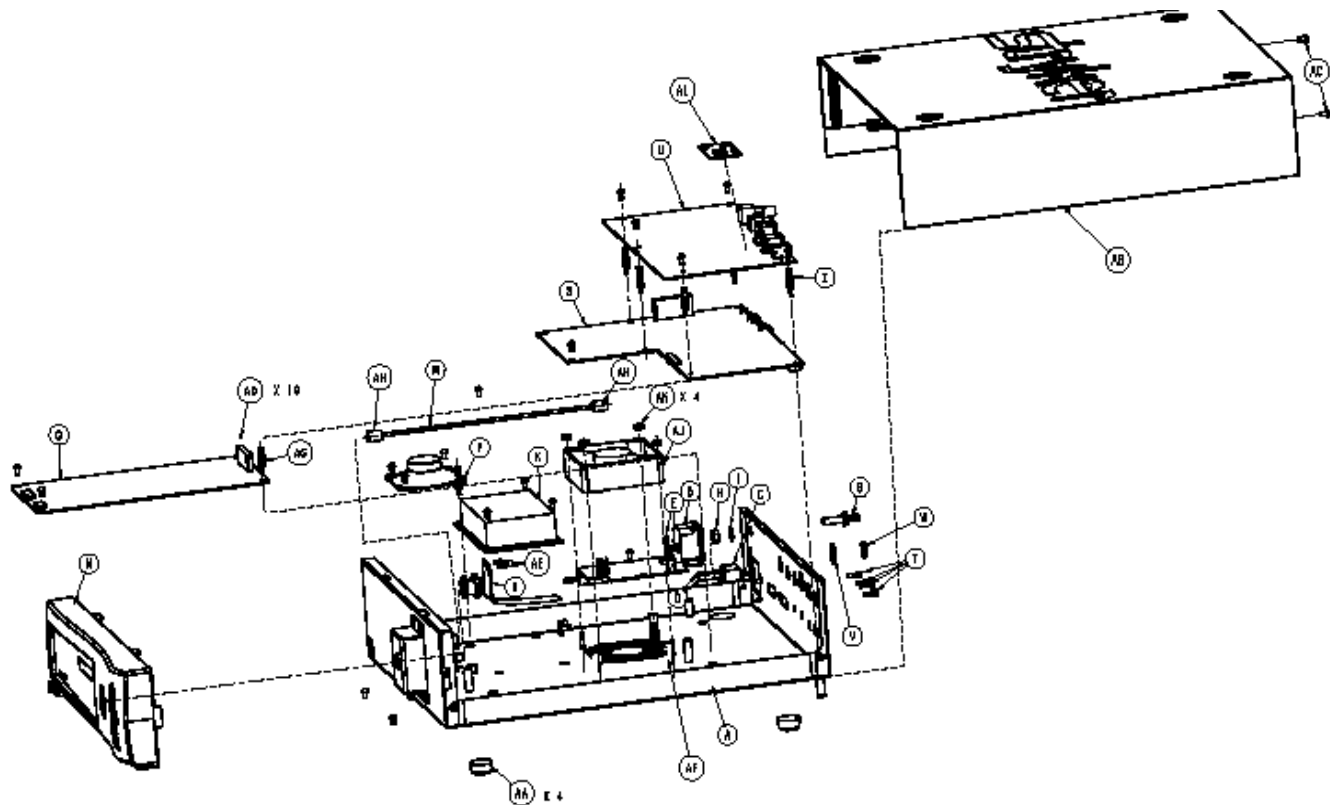
5.4 FUNCTIONAL TESTS

System Set-up

- Set up the system as shown in the User's Manual.
- Connect all S-VHS, RGB, and Video Out cables to the CCU.
- Plug in camera power cord. **Do not plug in the camera head at this time.**
- Turn on the CCU power switch.
- Turn on all electrical equipment and allow approximately 10 minutes for warm-up time. During this time, verify the color bars are present on every monitor.
- Verify that no numbers appear on the monitor.
- If any of the above do not occur, the unit should be sent to Stryker Endoscopy for repair.

6.0 Appendix

6.1 ASSEMBLY DIAGRAM



6.2 PARTS LISTING: ITEM PART NUMBER DESCRIPTION

A	105-201-748	CHASSIS TRAY 1088	N	105-202-293	ASSY, FRONT PANEL, 1088
B	105-202-083	ASSY, 1088AC INLET BOARD	O	105-201-656	CABLE, FRONT BOARD
C	105-180-681	FUSE DRAWER, 2 POLE	P	105-202-292	SPEAKER
D	105-202-434	FUSE, .63A	Q	105-202-285	MAIN BOARD
E	105-150-484	NUT, KEP #4-40 SS B	R	105-202-110	ASSY, LEMO/MAIN BD RIGID FLEX
F	105-182-034	CABLE GROUND	S	105-201-755	ASSY, 1088DIGITAL BOARD
G	105-150-419	POST, GROUND	T	105-196-055	POST, DVI-CONNECTOR
H	105-197-754	NUT, GROUND POST	U	105-202-079	ASSY, 1088REAR BOARD
I	105-150-421	LOCK WASHER, GROUND POST	V	105-180-111	WASHER, BAN (WASHER 1/16m, BNC)
J	105-201-654	CABLE, AC INET BD/POWER SUPPLY	W	105-180-110	NUT, BNC (NUT, 7/16, JAM, BNC)
K	105-201-574	POWER, SUPPLY UNIVERSAL	X	105-202-297	STANDOFF, 1/4" M/F HEX
L	105-201-655	CABLE, POWER SUPPLY/CONTROL BDS			STANDOFF 6-32 THD 3/4 LENGTH
M	105-202-477	PUSHROD, 1088CCU			

(6.2 PART LISTING CONT'd)

Y	1000-201-096	LABEL, WARRANTY VIOLATION
Z	105-203-222	CABLE, MAIN BD/CONN BD (RgB)
AA	105-201-291	FOOT, CHASSIS
AB	105-201-747	CHASSIS COVER, 1088
AC	105-193-198	SCREW, COVER (SCREW, 6- 32 X .25 PH EXT. SEMS)
AD	105-193-371	SCREW, 6-32 X 1/4 RH PHIL, SS
AE	105-170-446	SCREW, 4-40 X 1/4, SST PHILLIP, SST
AF	105-202-298	STANDOFF, F/F 1/4 HEX STANDOFF 6-32 THD 1 1/2 LENGTH
AG	105-202-306	STANDOFF
AH	105-201-256	CAP, PUSH ROD
AI	1000-205-971	LABEL, MODEL-SERIAL NO., 1088CCU
AJ	105-202-493	ASSY, FAN, 12v, 10881088/ 1088i Medical Video Camera Control UnitCCU
AK	105-150-489	NUT, #6-32 SST
AL	105-199-579	ETHERNET MODULE

6.3 REFERENCE DOCUMENTS

- MAP 0380
- MAP 0254

NOTE: NONE OF THE IN-HOUSE MAPs (Manufacturing Assembly Procedures), QIPs (Quality Inspection Procedures), SPECIALTY TOOLS, JIGS, OR FIXTURES LISTED IN THIS MANUAL ARE AVAILABLE FOR PURCHASE.

6.4 REPAIR AND ALIGNMENT SOFTWARE

The repair and alignment software for the 1088 CCU enables a repair technician to save customized specialty settings and load them onto a loaner or repair CCU. The technician may also reload default settings on any CCU.

The repair and alignment software saves custom settings for the following specialties:

- Arthroscopy
- Cystoscopy
- ENT
- Flexible Ureteroscope
- Laparoscopy
- Microscope
- MiniLap
- Standard

Start: Begins application

Connect: Begins connection with CCU

Reset: Resets all connection problems

Disconnect: Ends the CCU connection

Save to File: Saves the current settings as an excel file under the directory named in the system variable. The file name takes the following format: 1088_CCUSerialno.xls

Load Default: Loads the default settings, serial no. required

Load From File: Loads the file to all the variables

The screenshot shows the '1088 Production Interface' window. It features a top menu bar with buttons: Start, Connect, RESET, Disconnect, Save to File, Load from File, and Load Default. Below this is a large table with columns for different settings categories: Shutter, WB Offset, Process, Options, Gain, and Bias. The rows represent different specialties: ARTHROSCOPY, LAPAROSCOPY, MINI LAP, CYSTOSCOPY, ENT, FLEXSCOPE, MICROSCOPE, and STANDARD. Each row contains numerical values for these settings. At the bottom of the window, there are input fields for YUV/RGB, CCU Serial #, CH Serial #, and Time. Below these are buttons for Read CCU, Write CCU, Verify CCU, Read CH, Write CH, and Verify CH. There are also checkboxes for 'Write TIME' and 'Read TIME'.

Read CCU: Reads and inputs the CCU settings into the corresponding displays.

Write CCU: Writes the display settings to the CCU.

Verify CCU: Box is checked only if the Read and Write values are equal

Read CH: Reads and inputs the Camera Head settings into the corresponding displays.

Write CH: Writes the display settings to the Camera Head.

Verify CH: Box is checked only if the Read and Write values are equal.

6.4.1 SAVING CUSTOMER SETTINGS

To save customer settings on the CCU, perform the following steps:

1. Connect the serial cable from the computer to the SIDNE connector on the 1088 CCU.
2. Power on the CCU.
3. Locate and begin the 1088 Alignment software application.
4. Press “Start.”
5. Press “Connect.”
6. Press “Read CCU.”

NOTE: The CCU settings should be read and input in the fields on the interface.

7. Press “Save to File.”

NOTE: An Excel file of all the current settings should be automatically named with the serial no. of the CCU and saved to the C:/1088 directory.

6.4.2 LOADING CUSTOMER SETTINGS

To load customer settings on the CCU, perform the following steps:

1. Connect the serial cable from the computer to the SIDNE connector on the 1088 CCU.
2. Power on the CCU.
3. Locate and begin the 1088 Alignment software application.
4. Press “Start.”
5. Press “Connect.”
6. Press “Read CCU.”

NOTE: The CCU settings should be read and displayed in the fields on the interface.

7. Press “Load From File.”

NOTE: The settings should be read from the Excel file and displayed in the fields on the interface.

8. Press “Write CCU” to save the settings to the CCU.
9. Ensure that “1 4 5” is displayed on the bottom right corner of the interface.
10. Press “Read CCU” to reread the values.
11. Press “Verify CCU” to verify the write values. Ensure that the box next to the “Verify” button is checked if the values are equal.

6.4.3 TROUBLESHOOTING THE APPLICATION

- “Invalid CCU Serial No” appears in the display box.

Check the Serial no. format. It should read “XXAXXXXXX,” where X = number and A = letter.

- “Run-time error ‘1004’: Method ‘~’ of object ‘~’ failed.” appears in the display box.

Restart the application.

- “A file named ‘C:\1088\1088_.xls’ already exists in this location. Do you want to replace it?” appears in the display box.

Make sure the software reads the CCU before saving the file.

7.0 Warranty

This Stryker Endoscopy product is warranted to the original purchaser to be free from defects in material and workmanship for the following times:

- One year following shipment

This warranty extends to all purchases and is limited to the repair or replacement of the product without charge when returned in the original shipping case to:

Stryker Endoscopy
5900 Optical Court
San Jose, CA 95138

Stryker Endoscopy cannot accept responsibility for returns or replacements which have not been authorized. This warranty does not cover damages caused by misuse or by failure to follow the procedures outlined in this manual or demonstrated by Stryker Endoscopy representatives.

There are no other expressed warranties.

8.0 Service

Do not attempt to service this product yourself. If service is needed either during or after the warranty period:

1. Contact Stryker Endoscopy at 1-800-624-4422, or phone your local Stryker Endoscopy sales representative.
2. Clean and sterilize all parts that will be returned for service. Follow the instructions provided in the user manual.
3. Package all the components carefully in the original shipping container if possible.
4. Ship the product pre-paid and insured to:

Stryker Endoscopy Customer Service
Attention: Repair Department
5900 Optical Court
San Jose, CA 95138

The product described in this manual is continually being reviewed, and improvements may be made without notice.

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9.0 Other Service

For service in the U.S.A., call your Stryker Endoscopy Representative. Outside of the U.S.A., please contact your Stryker Endoscopy distributor at one of the following locations:

Stryker Corporation
2725 Fairfield Road
Kalamazoo, MI 49002
USA
Phone: 1-269-385-2600
Telex: 224464 STRYKER KMZ
Fax: 1-269-385-1996

Stryker Canada
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Stryker Deutschland GmbH
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Fax: 49-208-999-0666

Stryker Latin America
15100 N.W. 67th Ave. Suite 210
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